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AVIATION

Floating Islands for Transocean Air Routes

EDWARD R. ARMSTRONG, with a model of his floating "seadrome." Below is a model of the S. S. Majestic to the same scale.

By Gladys Moon Jones

Soon the tourist and the business man will be doing a Lindbergh across the Atlantic.

What must come before the daring hops of Lindbergh, Chamberlin and Levine are transformed into a regular passenger, express and mail service so safe and reliable that you and I will patronize them?

To the developments of aviation that have come so speedily since the Wrights' first flights at Kitty Hawk, there must be added:

Landing fields on artificial floating islands anchored far at sea.

Multi-engined seaplanes of large carrying power.

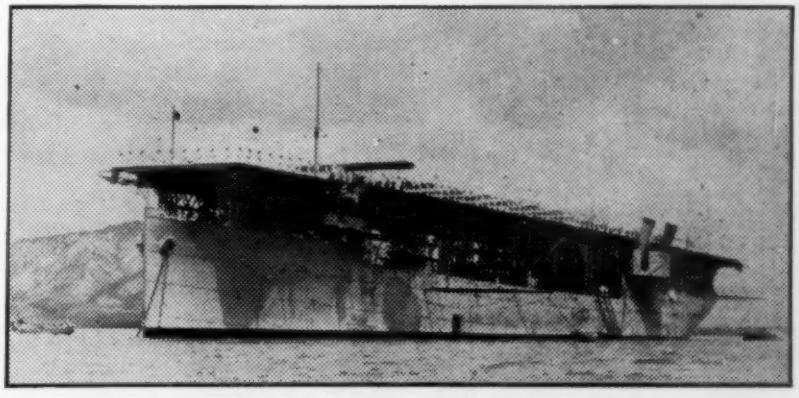
Seaplanes whose hulls will withstand the buffeting of a moderate storm when forced down to the ocean's surface.

Improved weather forecasting and reporting.

When the sealanes are dotted with floating emergency landing fields; when flying from New York to Paris is as common as the aerial journey from London to Paris, then spending the week-end in Europe may become practicable as well as fashionable.

Engineers and air enthusiasts in the United States and other countries, who have been inventing and planning landing fields in the sea, are no longer looked upon as dreamers or worse. Transoceanic aeronautics is ready for seadromes, aviation experts believe. They visualize floating fields at intervals of four or five hundred miles, lighted at night, strung together by route buoys and light beacons and equipped with fog signals and directional radio that will make the airways safe. Transoceanic flying companies will carry us, our mail and our freight at no greater cost and at a much greater speed than by boat at the present time.

(Just turn the page)



AIRCRAFT CARRIER LANGLEY. The U. S. Navy's effort to solve the floating landing-field problem.

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Floating Airports

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No, we are not dreaming to wake up and find the world the same slow, old jogtrotter. The mine-sweepers are already in commission to haul a seadrome, designed by Edward R. Armstrong of E. I. du Pont de Nemours Company of Wilmington, Del., 500 miles to sea. Private capital is behind it, and the Navy has been asked to station observers to watch it work.

First Seadrome Ready For Test

Ocean flyers will come down on the floating dock shortly if all present plans carry. This test seadrome, about 150 feet square, will be anchored where the water is about three miles deep, in the deepest "water hole" along the steamship lanes between North America and Europe. Future full-sized docks will be 1,200 feet long, have an area of about three acres and a displacement of about 15,000 tons. The upper deck will be about 100 feet above sea level. Great ballast weights will be placed far below the surface of the sea, where the wave action is negligible. Above through the open steel work the waves will carry through without affecting the landing deck, which remains level in stormy seas.

The seadrome will be anchored by steel cables built to stand a stress double the maximum they will actually experience. These cables must be more than 20,000 feet long in water "holes."

Small models of the Armstrong seadrome on a lake near the inventor's home proved feasible and were filmed for presentation to the Navy. They are said to be entirely practicable.

Another inventor, A. C. Heaphy of New York, began on his plan in 1918 and claims the basic patents on cellular plastic construction to be used in building floating airports. The prod-

(*Continued on page* 57)

News-Letter Features

Born over four years ago of the demand and interest of those individuals who had caught a glimpse of *Science Service's* news reports to newspapers, the SCIENCE NEWS-LETTER has since proved interesting to laymen, scientists, students, teachers and children.

Into the pages of the NEWS-LETTER are fed the cream of *Science Service's* output directed at the newspapers of the world. To this is added material especially prepared.

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Each article is automatically *dated* by its last line.

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Books are *reviewed in brief* as they are received from the publishers.

The classics of science and striking passages from current books, addresses and periodicals are carefully selected and published.

Important *anniversaries* of science are appropriately noted week by week in a special department.

Regular articles tell of the happenings in the *skies* and in the great *outdoors.*

Photographs aid in the telling of the week's science.

Great care is taken to keep its editorial content not only *interesting* but *accurate* as to fact and implication.

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Growing Your Own Trees From Seeds

CAMP FIRE GIRLS PLANTING A SMALL PINE TREE

An effective way to promote conservation, as well as to provide fascinating projects for boys and girls, is to encourage the raising of trees from seeds. The writer's experience has proved that children can become most enthusiastic over the planting and growing of trees; and where forest plantations have been established by boys and girls under intelligent supervision these plantings have been more successful than adjoining plantings made by adult employees.

While it is advisable to secure planting stock from the state or from private nurseries for reforesting large areas, yet four distinct advantages will result from the children raising their own planting stock instead of purchasing seedlings or transplants: (1) they will become familiar with all the steps involved in growing trees, (2) their planting materials will cost nothing, (3) they can raise species otherwise not available, (4) their planting stock is always on hand, therefore the trees can be transferred directly from the nursery beds to their ultimate destination at any time with the least possibility of loss.

There is a wide divergence among different species of trees as regards times when seeds mature, methods of collecting and storing, seasons and manners of planting and length of time required for germination. In view of these facts generalizations are difficult.

The seeds of certain broad-leaved species that develop a deep taproot such as the oaks, walnuts and hickories should be planted in the place where the trees are desired as transplanting is often disastrous. In planting the sod should be removed from a spot about a foot in diameter, the soil loosened and several nuts or acorns planted at a depth of about two inches below the surface. Several seeds are planted in one spot as some will not germinate. These seeds can be planted directly after gathering in the fall. If it is necessary to wait until spring before planting, the seeds can best be kept in the following manner: Place a layer of moist sand in the bottom of a box, then a layer of seeds, then another layer of sand, and continue until all seeds are "layered." The box should then be placed in a hole, sinking the top of the box just below the surface of the ground. The seeds should be planted in early spring. This method of layering should be used for the seeds of all nut trees.

Seeds of the maples, ashes, elms, locusts, basswoods, birches and others of the shallower rooted species should be planted in the early spring in beds and the seedlings allowed to remain there for one or two years before final planting. These beds, in which the seeds can be planted broadcast or in drills about four inches apart, should not be more than three feet wide so that when weeding the children can easily reach to the center from either side. The beds should be covered with a layer of sterile sand about one inch thick, and the seeds planted about a quarter-inch below the surface. By sterile sand is meant sand from a beach or from a depth of two or more feet below the surface of the ground. It should be free from weed seeds and roots. This will greatly decrease the labor necessary to keep the seedlings free from weeds.

The seeds of the pines, spruces and other conifers should be planted in early spring in seed beds like those just described. The little conifers, however, will do better if they are given partial shade during the period of germination and the first two or three months of growth and if, after two years in the seed beds, they are transferred to a transplant bed and left there another year or two before final planting in the field. After the seeds have been planted branches should be placed upon the beds to keep the soil moist. These should be removed as soon as the young plants appear. Thereafter shade can be supplied by a lattice or by branches supported about a foot above the beds to allow free circulation of air. Not more than half shade should be given even in bright weather and if the days are cloudy or rainy the screens should be removed as there is great danger during the first few weeks from damping-off, a fungous disease that will destroy all the seedlings. No shade should be provided during the fall months as the full light will promote a hardier growth. In the transplant beds the rows should be far enough apart to allow of easy cultivation and the trees should be about four inches apart in the rows.

There is no season of the year when one can not go out and gather the ripened seeds of some species of tree. Some mature in the spring, others in summer, the majority in autumn and many cling to the branches throughout part or all of the winter. Often there is wide variation between close relatives. For example, in some parts of its range the silver maple (*Acer saccharinum*) matures its seeds in May; the ripened fruits of the red maple (*A. rubrum*)

(*Just turn the page*)

The material on this page is furnished by the Coordinating Council on Nature Activities.

Planting Your Own Trees

(*Continued from page* 51)

fall in late May or early June; the seeds of the sugar maple (*A. saccharum*) ripen just before the leaves fall, and those of the box elder or ash-leaved maple (*A. negundo*) persist on the trees throughout a large part of the winter.

Seeds of the red and silver maples and of the elms which ripen in the spring should be planted immediately. They germinate quickly and under favorable conditions the maple seedlings should be well over a foot high by fall. Seeds of the other maples as well as those of the ashes, birches, catalpas, sumachs, sycamores, tulip tree and ailanthus which mature in the fall can often be gathered in winter. Seeds from these trees can be kept until spring in a cool room that is not too dry. On the other hand if the seeds are too moist they will mold. They will do very well if placed in airtight containers (e. g. fruit jars) and stored in a cold cellar. Where the seeds are in balls or massed together as in the sycamores and sumachs they should be separated before storing.

Most coniferous seeds should be gathered in the fall and stored in the manner just described. It should be remembered that cones are not seeds, and usually when the open cones fall to the ground the little winged seeds which were borne within each cone scale are gone. The cones should be gathered from the trees just before opening, dried until they open and the seeds rattled out. It will be easier to plant the seeds in the spring if the thin wings are rubbed off before storing.

Seeds of the cherries, mulberries and other fleshy fruited species may be treated as follows: First mash the fruit thoroughly. Then place in a pail and hold under a water tap. As the pail fills the fleshy portions will float to the top and the seeds will sink to the bottom. Pour off the liquid. Dry the seeds and keep them in a cool place.

Tulip tree, sycamore and basswood seeds have a very low viability and one can not expect more than a half dozen seeds to germinate out of every hundred planted.

After being placed in the ground some seeds remain dormant for a long time. Basswood seeds do not germinate for about eighteen months and black locust seeds require nearly as long a time unless treated in the following manner: Mix the seeds with an equal quantity of hot water and stir constantly until cool. After this treatment the seeds should germinate in a few weeks.

Seed gathering and tree growing need not be limited to those children who live in rural or suburban districts. The ailanthus, whose seeds hang in bunches on the bare limbs all winter, manages to exist even in our biggest cities and under the most unfavorable conditions. On many a winter hike other seeds can be gathered. These can be planted in gardens or even window boxes in town as well as in the seed bed in the country or at camp.

Those who wish to obtain more information concerning the growing of trees can do so by writing the New York State Conservation Commission. Albany, N. Y., the New York State College of Forestry, Syracuse, N. Y., the New York State College of Agriculture, Ithaca, N. Y., or similar sources in other states. Excellent detailed information is contained in the book *Seeding and Planting*, by Toumey, published by John Wiley & Sons.

The writer is grateful to John W. Stephens, Professor of Silviculture at the New York State College of Forestry, for critical reading of, and helpful suggestions concerning this paper.

FAY WELCH,
Camp Directors Association.

Science News-Letter, July 23, 1927

A nursery deck where small children may play is provided on some new steamships.

The Polynesians are the tallest race in the world, averaging five feet eight inches in height.

Jewels of the Darkness

There are few things as fascinating as watching the marvelous changes which take place in the life of a moth or butterfly—to watch the progress from egg to caterpillar, then to chrysalis or cocoon, and finally to see the triumphant emerging of a beautiful winged creature with only a few fluttering hours of sunshine or moonlight to live!

We may hunt for moths, not to kill them, but to keep them until they lay eggs, so that we may watch this life cycle from its very beginning.

Miss Wickwire, Camp Fire Guardian and director of Camp Nyoda at Cortland, New York, has been most successful in interesting her girls in this phase of nature lore.

Moth hunting is a mysterious business. Six are enough for our expedition. Three should have flashlights and three poison jars. These are wide-mouthed fruit jars with tightly fitted tops, in the bottom of which the druggist has put lumps of cyanide of potassium, covering them with plaster of Paris. We put a layer of cotton over the plaster so that the moth will not shake around too much.

We must also have our sugar mixture and a whitewash brush. To make this sugar mixture we have put about two quarts of vinegar and ten pounds of brown sugar together with all the rotten apples and bananas we could find. We should also take with us six dozen five-pound paper bags bought at the grocery store.

We must find a group of trees, and with the whitewash brush daub a spot on each with the sugar mixture, letting it get well into the crevices. Daubing about thirty trees or fence posts close together will make the concentrated odor which will attract the moths.

We can rest now until it gets dark. Then slip up cautiously with the lights and turn them full on the "sugared" spot. Don't let them waver or every moth will fly away.

Those with jars must be ready with the tops loose and step quickly to the tree. Hold the jars low, raise the top and scoop down. Moths when disturbed with few exceptions dart downwards. Therefore they dart into the jars. Nevertheless be quick with the cover or they will dart out. Be sure all are stunned and quiet before going to the next tree.

We find many moths of gray, brownish gray, and other shades

(*Continued on page* 59)

EVERY Fisherman *Should Have It*

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BOTANY

Speeds Plant Growth

Spring wheat harvested 35 days after sowing; red clover in flower 38 days after seeding, a large head of lettuce grown in three weeks. These are the remarkable results obtained through the use of artificial light, heat and atmosphere, at the Boyce Thompson Institute for Plant Research at Yonkers, N. Y.

Three things are responsible for this speeded up plant growth, Dr. John M. Arthur explains in a report to the Engineering Foundation. One is bright illumination, in some cases for 24 hours a day. Another is high temperature. The third is increased amounts of carbon dioxide in the atmosphere.

The researches were made in an effort to find out how plant processes may be made more efficient. Photosynthesis, the scientist's name for the method by which light causes substances to combine, makes plant growth possible. In nature it is a very inefficient operation. Only about one per cent. of the energy that falls on the plant is utilized.

"An unusual opportunity for the efficiency expert!" Dr. Arthur says. "If only a few tenths of one per cent. could be added to the efficiency of photosynthesis, an enormous increase would be available in total energy fixed when applied to nature's vast quantity production. Over one hundred years ago, de Saussure showed that green plants not only use the small amount of carbon dioxide normally in air but can use more when available. These facts indicate a means of increasing the efficiency, yet no application was made until the recent World War. Then, under pressure of food shortage in Germany, processes were perfected by Riedel and others for scrubbing gases from combustion of coal, coke and charcoal to produce carbon dioxide. The gas was piped into greenhouses among growing plants. With high temperature and high light intensity a concentration of less than half of one per cent of carbon dioxide will about double the dry weight of plant tissue produced."

Many plants can use more light than they get from nature. If such plants are kept continually under an arclight, or if artificial light is used to supplement daylight, their growth is hastened. Wheat and clover will stand full 24 hours of light a day. The tomato, however, needs a rest, and it grows fastest with 12 hours of daylight and 6 more of artificial light.

Commercial application of these facts is not yet in sight, Dr. Arthur points out. Every day 1500 kilowatt hours of electricity were used during the plant tests. The ordinary home seldom uses more than one kilowatt hour a day. But, says Dr. Arthur:

"From researches like these may come in time new means for producing some foods and fuels and other supplies for human needs. Economic achievement, however, yet appears remote except in small scale operations."

Science News-Letter, July 23, 1927

GENERAL SCIENCE

Last Century Science

What about the very first number of the English weekly journal of science, *Nature*? What did the editor choose to lead off with November 4, 1869?

New things in science are popping tremendously fast now. In our effort to keep up with all the popular science writers and the untolding future of science we forget to avail ourselves of the pleasure of peeping into the past. The very musty smell of an old book in a cool library on a hot day has its scientific aspects. Let us pause to research a little into the past.

The first number of *Nature* let T. H. Huxley set the key—Huxley, grandpa of those boys, Julian and Aldous, that man who warned Darwin, "I will stop at no point as long as clear reasoning will carry me further." He translated for *Nature* Goethe's rhapsody on "Nature," apologized for its pantheism and quoted Goethe himself writing about his composition:

"If we consider the high achievements by which all the phenomena of Nature have been gradually linked together in the human mind; and then thoughtfully peruse the above essay we shall not without a smile compare that comparative with the superlative which we have now reached, and rejoice in the progress of fifty years."

Then said Huxley:

Forty years have passed since these words were written and we look again, "not without a smile," on Goethe's superlative. . . . the notions which represented Goethe's superlative are now the commonplaces of science—and we have a super-superlative of our own. When another half-century has passed, curious reader of the back numbers of *Nature* will probably look on our best, "not without a smile."

Now the next half-century has more than passed. In 1927 we do—we must smile as we read the index Physician Question" and "Anatomical Lectures to Female Students" taking up space devoted to science.

However, we need not smile at the leading article of the second number, signed F. R. S., probably also written by Huxley. It is for us today. He says the men of science are much to blame for the dullness of science.

It is their sense of beauty that leads them to Truth, whom they discover by means of the glorious garments which she wears. But she is immediately stripped of these, and dressed in an antiquated mediaeval garb, worse than any charity-school girl. . . . no wonder that in such guise her beauty is unperceived by those who cannot pierce the veil, and that as a consequence she is slightly esteemed.

It is the duty of the "priests of science" to use the vernacular to impress the hearts of humanity. When they have learned to do this "they need not fear their deacons who will call their teaching sensational."

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ENGINEERING

Current from Wind

Use of the windmill for the generation of electricity in rural districts unconnected to a main line supply is urged by the Oxford University Institute of Agricultural Engineering.

Windmill plants can generate electricity cheaply and continuously it was proved in experiments made by the Institute. Place the windmill where nothing interferes with prevailing winds, supply it with storage batteries to act as a substitute for the wind on calm days and, presto change, there is an up-to-date electricity-generating plant. As an auxiliary to charge the batteries, engines may be used which are no longer fit for regular running, thus enabling a smaller plant to be chosen than would otherwise be necessary. Such engine sets are common throughout the country and would make good any occasional deficiency in the windmill plant.

The cost of windmill-generated electricity was shown to compare favorably with the cost of electricity from supply companies but the windmill plant does not, of course, equal the supply company in reliability and flexibility of service, The small power scheme is urged only for districts remote from a main supply line.

Science News-Letter, July 23, 1927

Every wild animal species has its bright, average, and dull individuals, just as they are found among races of men.

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New York: Doubleday, Page & Co. 1923.
$2.50 and $1.00.

KEEPING UP WITH SCIENCE
Edited by Edwin E. Slosson.
New York: Harcourt, Brace & Co. 1924.
$2.50.

WHY THE WEATHER?
By C. F. Brooks.
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SOIL AND CIVILIZATION
By Milton Whitney. Library of Modern Sciences.
New York: D. Van Nostrand Co. 1925.
$3.00.

CHEMISTRY IN MODERN LIFE
By Svante Arrhenius, translated and revised by C. S. Leonard. Library of Modern Sciences.
New York: D. Van Nostrand Co. 1925.
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DWELLERS OF THE SEA AND SHORE
By William Crowder.
Young People's Shelf of Science. Edited by E. E. Slosson.
New York: The Macmillan Co. 1923.
$2.25.

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PSYCHOLOGY

Baby's Personality Not Set

"Personality is not formed in the first two years of life, nor yet in the first ten," according to Dr. Charles Judd, of the University of Chicago.

The years before a child enters school are now being stressed by many psychologists and educators as the most important in shaping an individual's outlook on life. But parents and teachers should understand that there are many angles of personality which are not firmly established until later childhood, and human nature is never wholly fixed, Dr. Judd shows in a paper reported in *School and Society*.

Dr. Judd agrees with modern experimenters that fears and other emotional reactions are often established in young children. The baby may be frightened by one encounter with a big dog, by one thunderstorm, or by the sight of a strange woman swathed in black mourning clothes, and if the early experience is not contradicted by later more fortunate experiences, a fear of animals, thunder, and black objects may become ingrained.

The school years are extremely important, however, in developing the more complex attitudes toward life, Dr. Judd states. Social adjustments, attitudes toward property, and taste in the fine arts, are acquired only after a long train of highly complicated experiences.

"The individual who graciously steps aside in deference to his neighbor is expressing an attitude which is an important part of his personality," he declares. "The individual who is always prompt in meeting social engagements has a habit which the social group will certainly appreciate and commend. He has in his promptness a trait which is a highly important attitude. But good manners and promptness do not come in a day. They mature through the counterbalancing of multitudes of individual contacts which under the wise guidance of experienced teachers have led the individual to respond in the most sensitive way to the needs and demands of social life."

Even unfortunate attitudes established in childhood should not be regarded as calamities beyond repair, Dr. Judd says.

"There is hope for the worst of us," he states. "The person who has a fear of thunder may under proper discipline overcome even that deep-seated attitude. The training of a perverted habit is a double task. First there must be a successful attack on the accumulated attitude, and, second there must be a reconstruction of the individual's mode of response to the situation. Such a double task, however, has been successfully performed again and again."

Science News-Letter, July 23, 1927

MEDICINE

Sunstroke Oldest Disease

It is time to keep on the safe and shady side of the street when the mercury begins to crawl up above ninety. Speech disturbances, hallucinations, and paralysis are some of the things a victim of sunstroke may wake up to, if he recovers at all, according to Drs. E. G. Wakefield and W. W. Hall of the U. S. Navy Medical Corps who have recently completed a study of heat injuries. Even after these unpleasant manifestations have worn off and the patient has recovered he may remain hypersensitive to heat throughout his life.

Heat-stroke or sunstroke is one of the oldest known diseases according to the best medical authorities. Two cases are unmistakably described in the Bible, one in the fourth book of kings and the other in the apocryphal book of Judith. Until the middle of the nineteenth century the effects of heat injuries were confounded with apoplexy. From the time of the publication in 1858 of the experimental work by the great French biologist, Claude Bernard, on the effect of heat, however, the theory of the disease has been based on experimental observation.

Drs. Wakefield and Hall are engaged in research on this vital problem of hot weather from which they hope to obtain results which will elucidate further just why people succumb to sunstroke.

The contention that people from cold countries are more susceptible than those from warmer regions is borne out by data obtained by the navy doctors from the number of heat injuries sustained by enlisted men in the fiscal years 1924 to 1926. In a report of their investigation to the American Medical Association they assert that 121 men from northern states were afflicted in this period while only 89 southerners were affected by the heat during the same time.

Science News-Letter, July 23, 1927

Too rapid growth in babies results in rickets.

It costs about $7,238 to care for a child from birth to 18 years, recent statistics show.

PHYSIOLOGY

Fear and Seasickness

Vacationists, Europe bound, can just as well throw their carefully packed seasickness remedies overboard before they start.

The power of suggestion is more potent than drugs to combat unpleasant eventualities when one sallies forth on the briny deep, according to Dr. W. N. Boldyreff, physiologist, of Battle Creek Sanatarium.

Dr. Boldyreff believes that fear is at the bottom of the gastric and intestinal disturbances that produce seasickness. The psychic reaction of fright, in his opinion, inhibits the secretions of digestice juices, which afterward pour forth with greater force irritating the sentitive lining of the intestine, with the consequences which need no elucidation.

Suggestion is the rational means of preventing the malady, he declares, while the best method of curative suggestion would be lectures on the causes and prevention of seasickness so that the prospective victims would have their apprehensions removed as far as possible. Training the hands on boats so that tactless comments to passengers suggesting seasickness are reduced to a minimum would likewise be an important factor in lessening its incidence, in the physiologist's estimation.

Women and children are seasick more than men, but even old sailors who have followed the sea for many years are not immune. Of the dozen or more drugs in current use as remedies, Dr. Boldreff recommends only atropine for severe cases. Lemon or orange juice sometimes helps while cigarettes should be packed away for consumption after landing since nicotine apparently increases predisposition for seasickness.

Science News-Letter, July 23, 1927

PHYSIOLOGY

Sweden for Blood Tests

Blood tests to determine questions of paternity can safely be used as legal evidence, the medical faculty of Lund University, the next oldest in Sweden, has advised the Department of Health in Stockholm in response to a formal request for advice. In the making of the tests, the professors demand certain careful precautions and suggest in cases where the blood tests give no definite result, as does occasionally happen, the use of finger-print tests which also tend to prove blood relationship.

Science News-Letter, July 23, 1927

Feature of News-Letter How to Use Key-Word

In order to aid in catching the items that concern you and to facilitate clipping and filing, a key word in small capitals has been printed on the right of the line above each article. The key words used fit into any system of classification, whether it be a straight alphabetical file, a system of your own devising, the Library of Congress classification or the Dewey system.

Note that you can slip out any article without fear of damaging another article in which you might be interested, since editorial matter printed on the right-hand pages is backed by advertising, standing matter or a continuation of the article on the other side.

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The classification of the Library of Congress has come into common use in the libraries of the country owing to the publication of the Government of the card index of all new books. We print below a list of the subject titles which are most used in the SCIENCE NEWS-LETTER. The full scheme of classification is contained in "Outline Scheme of Classes," issued by the Library of Congress.

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QC Physics.
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QE Geology.
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QK Botany.
QL Zoology.
QM Human anatomy.
QP Physiology.
QR Bacteriology.
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SD Forestry.
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SH Fish culture and fisheries.
SK Hunting. Game protection.
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TD Sanitary and municipal engineering.
TE Roads and pavements.
TF Railroads.
TG Bridges and roofs.
TH Building construction.
TJ Mechanical engineering.
TK Electrical engineering and industries.
TL Motor vehicles. Cycles. Aeronautics.
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110 Metaphysics
120 Special metaphysical topics
130 Mind and body
140 Philosophical systems
150 Mental faculties. Psychology
160 Logic
170 Ethics
180 Ancient philosophers
190 Modern philosophers
200 RELIGION—
210 Natural theology
220 Bible
230 Doctrinal. Dogmatics. Theology
240 Devotional. Practical
250 Homiletic. Pastoral. Parochial
260 Church. Institutions. Work
270 Religious history
280 Christian churches and sects
290 Ethnic. Non-Christian
300 SOCIOLOGY—
310 Statistics
320 Political science
330 Political economy
340 Law
350 Administration
360 Associations. Institutions
370 Education
380 Commerce. Communication
390 Customs. Costumes. Folklore
400 PHILOLOGY—
410 Comparative
420 English
430 German
440 French
450 Italian
460 Spanish
470 Latin
480 Greek
490 Minor Languages
500 NATURAL SCIENCE—
510 Mathematics
520 Astronomy
530 Physics
540 Chemistry
550 Geology
560 Paleontology
570 Biology
580 Botany
590 Zoology
600 USEFUL ARTS—
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620 Engineering
630 Agriculture
640 Domestic economy
650 Communication. Commerce
660 Chemical technology
670 Manufactures
680 Mechanic trades
690 Building
700 FINE ARTS—
710 Landscape gardening
720 Architecture
730 Sculpture
740 Drawing. Decoration. Design
750 Painting
760 Engraving
770 Photography
780 Music
790 Amusement
800 LITERATURE—
810 American
820 English
830 German
840 French
850 Italian
860 Spanish
870 Latin
880 Greek
890 Minor languages
900 HISTORY—
910 Geography and travels
920 Biography
930 Ancient history
Modern
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970 North America
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990 Oceania and polar regions

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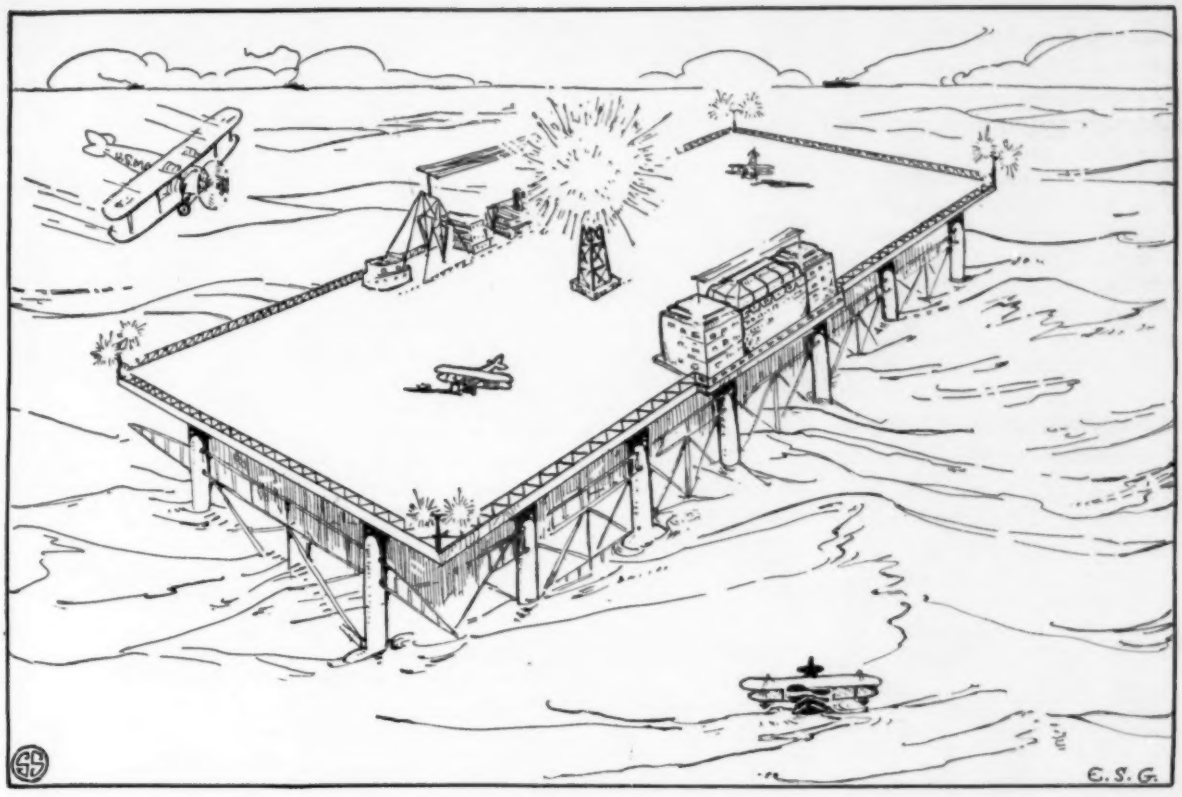

THE ARMSTRONG "SEADROME" as it might appear when anchored in mid-ocean as a way station on trans-Atlantic air routes. A full sized, experimental seadrome is now under construction.

Floating Airports

(*Continued from page* 50)

uct is virtually floating rock, a formation consisting of a combination of rigid and watertight cells with cement, concrete or other plastic materials, in such a manner as to render the resultant mass, irrespective of its form, buoyant in water or other liquids.

Other Countries Planning Islands

Intra-empire routes are also the aim of Air Secretary Sir Samuel Hoare of England. The British idea of a mid-ocean landing place, according to plans before the air communications committee, is an island a quarter-mile wide and a half-mile long, with a 985-foot harbor cut in the understructure. It is planned to be built of reinforced concrete, capable of resisting the action of the water. Caissons, water ballasts and giant gyroscopes will insure equilibrium and flotation. A French engineer, Henri Defrasse, has a plan for a horseshoe-shaped island, providing a lagoon of calm water. He would also have engines and propellers to keep the island in place and swing it about instead of anchoring it. The Italian government has appropriated $6,000,000 on some such experiment. The huge horseshoe type of surface island is said to be the Italian plan.

The Armstrong seadrome is the only one elevated above the water.

"The only way to treat a wave is to regard it as a lion and keep away from it," Mr. Armstrong told officers of the Navy when he came to Washington with the moving pictures of his model in action. Anything that breaks the wave action will be a wet place. The waves go right through the understructure of this double-decked island and the top floor remains level. For this reason, the inventor felt more confident than the Naval officers about the matter of anchoring. The ardous task of anchoring a bobbing ship in deep water is not the same problem.

"It is going to be done, and very soon by some one," continued Mr. Armstrong. "We propose to be the first to do it and intend doing it, no matter how foolish it looks."

Advantages of Ocean Depots

The greatest need of the aviator will be met in the sea by the establishment of meteorological stations reporting the weather over the seas. The weather map of the United States Weather Bureau now presents a great blank space in the Atlantic Ocean. From the Azores on the south to the Danish station in south Greenland there are usually no reports between Newfoundland and Ireland, America and the Europe. However, during the recent fever of trans-Atlantic flights ships in the Atlantic have reported to the Weather Bureau. On the map for June 4 and June 5, the days of Chamberlin's flight, the ocean area was as thickly covered with reports as the mainland. It showed what could be done from the Atlantic. It is possible to know the weather aloft by means of captive balloons and kites that carry instruments and by airplane observations. Layer maps, such as the United States Weather Bureau constructs, now would show the birdman conditions on eight levels. It is not the distance he fears, but the storms.

Before coming to the cost of floating islands we might consider further glories of airplane travel over water as compared to flying over land. Airmen agree that going over a trans-continental air route is harder than going over water. True, even the layman, or rather the earthworm, can see how the mountains, high-tension wires, buildings and pedestrians might get in the way. Furthermore, the maritime aviator can determine his level above the sea more readily than the overland flyer his above the surface. And when the weather is "thick" and the visibility low, the overwater pilot can hug the surface

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Floating Airports

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and go with less worry than when over densely-populated areas.

Moreover, lighthouses provided for the surface ships will serve the air ship as well. Coastal charts published by the government also aid the maritime flyer. Interior air routes are just being mapped. Railroad maps are not acceptable, except as an expedient of necessity. The whole coast from Eastport to Brownsville and from Puget Sound to San Diego has been charted in form quite satisfactory for the seaplane pilot's needs.

Will Seadromes Pay?

Convinced of the advantage and safety of over-water flying, passengers will choose airplanes instead of boats for crossing oceans. When the trip will be only twenty-four hours instead of five days, surely a tenth of those who now travel first-class will choose the air route. And if that many do, it has been estimated the cost of the passage need be no higher than on the liner.

The cost of eight seadromes strung across the Atlantic, it has been estimated, will be a little less than $30,000,000, which is $6,000,000 less than the cost of three steamships like the Leviathan or Majestic. Airplanes could make more trips than steamships. An investment of $1,600,000 in airplanes would equal in annual traffic-handling power nearly eight times as much as that amount put into steamships. The competition of the steamship will be less keen than that of the railroad because of this speed advantage.

Ships and Harbors for Flyer

Even those who doubt the practical value of mid-ocean airports can see the desirability, if not the actual necessity, of harbor airports. The Merchants' Association of New York is considering building a "Heaphy island" in upper New York Bay as an airport. A good land site has not been found near the heart of the city. This is the prevailing problem of the city and, as Boston and Baltimore have found landing fields near the harbors, the way has been pointed for other cities on the coasts and near interior waters.

Aviators are not only taking the air but going to sea; that is certain. The Lexington and Saratoga, aircraft carriers, are now being built by the Navy and are to be launched this summer. The Navy began last year to acquire equipment for these vessels. Each carrier will be 888 feet long and 105 feet wide. They will have a speed of thirty-three and one-half knots an hour. Each ship will have airplane shop facilities, so that aircraft can be kept at sea indefinitely.

The United States has been trying all recent inventions having to do with taking the air fleet to sea. The success of the Langley, the test Navy aircraft carrier, has been the basis of the realization of the Navy's post-war slogan: "On the surface, under the surface and in the air." The Langley has proved that sixteen, even twenty-four, planes can take off one after the other from the deck of a ship. Trained pilots can land on this ship base, even when the vessel is tossing and rolling on the waves. The Navy Department maintains on the Atlantic coast a school for pilots, where, from a wooden platform, like the deck of a carrier, men are trained to land aircraft on flight decks of these modern ships.

The seadromes will serve commerce and peace. Whether they will promote international accord as commercial interests hope, or aid greater nationalism remains, like the problem of anchoring them in their place in the deep sea, to be seen.

Science News-Letter, July 23, 1927

Fewer people emigrated from Italy in 1926 than in 1925.

Castor oil is important in the making of artificial leather.

The common brown rat has spread until it now infests every state.

There are 66 kinds of birds that enjoy eating cotton boll weevils.

India takes 40 per cent. of the world's gold production each year.

Ready mixed concrete is being sold by firms in some industrial centers.

The paradise fish becomes pale when afraid and turns red when angry.

Eskimos in Baffin Land have lately been troubled by a new species of mosquito.

Kauri pine trees of New Zealand occasionally grow to be 20 feet in diameter.

Falls kill more people than battles, according to the National Safety Council.

A large forest of petrified wood has been found in an inaccessible valley of Texas.

MEMORANDUM

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BIOLOGY

NATURE RAMBLINGS

By Frank Thone

"A Rat in Feathers"

This generation, that groans under the burden of a multitude of pests, finds it hard to realize that some of the worst of them were deliberately brought in from foreign lands by our forefathers. Yet apparently reliable tradition has it that the dandelion was thus imported, and the gipsy moth and its ill cousin the browntail. The Norway rat came uninvited, but the English sparrow, the rat's equivalent in feathers, arrived as a guest. It is even recorded that several determined efforts had to be made before the bird became established in this country. Nowadays we wonder at the misguided persistence of our ancestors no less than at their bad taste in birds.

There simply isn't one redeeming feature about the English sparrow. He is dirty and frowsy in his personal appearance. His nest is an untidy mess, always where it is most bothersome, and rebuilt with the repetitious tenacity of a rat as often as you tear it out. He is a quarrelsome bully toward his betters, and a murderer of their young whenever he gets a chance. He is forever and copiously using his voice, which hasn't a single musical note in it. He is faithless to his spouse, who is equally faithless to him. He is a disgrace to his kinsfolk, for the rest of the sparrow people are "quality" among birds, and have a position of their own among the country gentlefolk. If, as old moralists argued, there is some use for all created things, the only utility of the English sparrow so far discovered is to perfect the patience of the saints and the vocabulary of the sinners.

Science News-Letter, July 23, 1927

Cockatoos sometimes live to be 80 years old.

There are more than 6,000 kinds of capterpillars in America north of Mexico.

Jewels of the Darkness

(*Continued from page 52*)

among which tan predominates—one especially lovely kind on the hind wings of which are bands of glowing rose and black.

We must take our catch from the poison jar about every ten minutes and put them in the bags.

We will feed them with dried apples soaked in honey, and water, a teaspoonful of strained honey to a quart of water. Apples may be soaked all day, then be dropped into the bags. The moths only sip the moisture from the apples, so they may be again dried and used many times.

The moths must be classified by carefully comparing their markings with the pictures of moths in Elliott and Soules' "Caterpillars and Their Moths," or some other reliable moth book. They should then be put in separate bags, only one kind of moth to a bag, with the name written on it.

Each day we must keep a watch for eggs. These are sometimes so tiny they are hard to see and are of different shapes, colors and exquisite patterns when seen through a microscope. A full description should be kept of these as there are many common moths whose eggs have never been described. The date when egg are first seen in the bag should be put down under the moth's name. When the moth dies, the eggs have all been laid, not before.

Eggs should then be cut out from the bag with enough paper around them to insure handling without touching them. They should be kept in test tubes with the name, date of first laying and date of death of moth written on gummed labels.

Watch the eggs for any change in shape, colors or markings and put down the dates when changes take place and what they are.

Watch Those Caterpillars!

At last the eggs hatch. When the caterpillars come crawling out of their eggs, they'll want more room to romp around in than the test tubes will allow, so put them into jelly glasses or jars. Brush out the jars every day with a paint brush having a fairly long handle. Usually, a very little sprinkling may be done for young caterpillars are thirsty "critters." Great care must be taken as the tiny creepers are easily drowned.

Some eat their shells after hatching and this habit should be noted in the record. Usually it is twenty-

(*Just turn the page*)

NEUROLOGY

Perfect Brain in Future?

Evidence that the human brain of which man is so proud is probably just a forerunner of the perfect brain of the future is presented by Dr. Frederick Tilney, professor of neurology at Columbia and one of the foremost authorities on the brain in this country. So far as instincts are concerned, present day man has not progressed beyond the prehistoric Neanderthal man who lived 100,000 years ago and looked like a gorilla, he states.

The first comparative study of the evolution of man's brain and its relationship to the brains of the higher apes has just been completed by Dr. Tilney. His results reported to the *Archives of Neurology and Psychiatry* indicate that the human brain has made steady growth up to the present time, and that it is now in an intermediate stage.

Famous specimens of prehistoric fossils, some several million years old, were placed at the disposal of Dr. Tilney by the American Museum of Natural History.

"When the brains of all the prehistoric men we know are placed side by side there is not a question of doubt about this progress in development, which is sufficient to convince the most skeptical," he states. "There is a definite increase in the width of the brain, expanding those areas which have to do with sensation and the part of the brain which has to do with the higher faculties of reason and judgment."

Where man has stood still, or perhaps even fallen behind, is in learning to control his own nature, he concludes.

Of the oldest man-like creature known to science, Dr. Tilney says: "In size and appearance its brain resembles that of a three-year-old child."

From careful comparison of famous relics of early men and apes he finds evidence of the close relationship between them in the evolutionary scale.

As one of his conclusions, he states: "That there was a definite prehuman stock, capable of producing both anthropoid and man, cannot be disputed."

Science News-Letter, July 23, 1927

A new bird refuge has been established in Alaska.

Alexander the Great was a left-handed swordsman.

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Jewels of the Darkness

(*Continued from page* 59)

four hours after hatching before baby caterpillars begin to eat, but food should be supplied at once nevertheless. Where food plant is known this is easy. When it is not, several kinds of leaves may be cut into strips and put in the test tube with the eggs and caterpillars.

Most caterpillars molt four times between hatching and changing into the chrysalis or pupa state or the spinning of a cocoon. Each skin must be described and dates kept together with any noticed change of habits. The excrement of caterpillars is usually in the form of black pellets, but before the great change to a pupa takes place, the intestine is emptied. This excrement is more or less liquid and sometimes brownish or greenish. This is the first sign of pupation. At this time a quiet caterpillar sometimes becomes restless, and all cease to feed.

Now is the time to give earth to the burrowing kind and a place to hang from to those that want to hang, and leaves to those that use them in making their cocoons. Many die at this stage and none sould be disturbed or touched. They sometimes shrivel to half their size and look dead, but at this time you should be very sure before destroying a caterpillar. Watch and wait. Usually the skin is shed within two or three days and either all is well, or all is over.

Now the only thing left is to wait for the glorious winged creature of darkness or daylight to break through.

HARRIET A. WICKWIRE.

Science News-Letter, July 23, 1927

Nature Coordination

Realizing the need for a national program that would coordinate the nature activities of national groups working with young people, the American Museum of Natural History invited these volunteer organizations to form a council to be known as the Coordinating Council on Nature Activities for the purpose of teaching the growing generation, through nature activities, the value of all wild life and natural resources and their conservation.

The various organizations represented are as follows:

American Museum of Natural History, American Natural Study Society, Boy Scouts of America, Camp Directors Association, Camp Fire Girls, Inc., Girl Scouts, Inc., Pioneer Youth of America, Woodcraft League of America.

Science News-Letter, July 23, 1927

MEMORANDUM

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First Glances at New Books

STUDIES IN OPTICS—A. A. Michelson—*Univ. of Chicago* ($2). Few scientists have made as complete and thorough studies of light, and associated phenomena, as Prof. Michelson. Nor have few scientists' labors had as far-reaching results. The whole theory of relativity, and the concepts connected with it, trace their ancestry back to Michelson's famous experiment in collaboration with Prof. Morley. And then, in more recent years, the measurement of stellar diameters for the first time, with the aid of his interferometer, opened up a new astronomical method. In this little book he discusses and explains these and other researches. "Studies in Optics" is the latest in the University of Chicago's famous "Science Series," which includes such important books as T. C. Chamberlin's "Origin of the Earth," R. A. Millikan's "The Electron," and L. E. Dickson's "Algebras and Their Arithmetics."

Science News-Letter, July 23, 1927

A GUIDE TO THINKING—Olin Templin and Anna McCracken—*Doubleday, Page*. There is no course in the curriculum that is more in need of revivifying than the oldest and most fundamental of all, logic. Since it deals with the laws of thinking, the right use of which is essential to success in all the other studies of the school and to the conduct of subsequent life, it should be the dominant influence in every class. Unfortunately the study of formal logic has come to be regarded as the deadest and most impractical course in college.

But it is not so regarded in the University of Kansas where Professor Templin has devoted his best energies for a lifetime to making logic a vital and practical pursuit. "I had the privilege of being a student in his first class in that course, away back in 1890," says E. E. Slosson, "and I remember how we were shocked and disconcerted when he took a daily paper as a text book. So long as we kept to 'all men are moral' and 'Socrates was a man' when we were called upon to apply the rules of the validity of the syllogism to the spellbinder of the current campaign it was as hard on us as it was on the speaker's argument."

Methods that he has worked out in classroom since he has embodied in this "Guide To Thinking" in so clear and succinct a form that they can be used by any teacher.

Science News-Letter, July 23, 1927

GENERAL CHEMISTRY—James Kendall — *Century* ($3.50). Professor Kendall has followed in the main the plan and method which the late Alexander Smith introduced at the University of Chicago and afterwards at Columbia, but he has not only added a large amount of new material acquired in recent years and has given this volume of the famous series a new trend in adapting it specifically to students who want to realize to the full the cultural value of the science. This he has accomplished not by weakening the substance of the book or lessening its demands upon the pupils and the teacher, but by making more prominent the human interest and the wider aspects of the study of chemistry. The chapter headed "Valedictory" is a unique feature in that it introduces the names and achievements of the foremost living chemists in this country and abroad. Kendall's "General Chemistry" is not only a practical textbook but a useful volume for the reference shelves of any public library or reading room.

Science News-Letter, July 23, 1927

BUSINESS WITHOUT A BUYER—William Trufant Foster and Waddill Catchings—*Houghton Mifflin* ($2). When wheels of industry go round and goods are rushed to shop shelves, but buyers are lacking, there is financial depression. Upon this basic proposition, and the opposite picture of prosperity when buyers buy freely, these two economists build an explanation of such matters as our foreign trade and war debts, the effect the automobile is having on American prosperity, and the much discussed subject of instalment selling. An unusual book, addressed to those who like their finance and economics served in readable, vivid style.

Science News-Letter, July 23, 1927

EUROPA 1927—An annual Survey of Economic and Social Conditions—*Routledge*. (London) 15 shillings.

A European Who's Who in politics, trade, science, art and literature, exclusively a work of reference of European life and civilization.

Science News-Letter, July 23, 1927

ELEMENTARY PHYSICAL CHEMISTRY—Hugh S. Taylor—*Van Nostrand* ($3.75). A college text on physical chemistry, based on the author's larger "Treatise on Physical Chemistry."

Science News-Letter, July 23, 1927

USING RADIO IN SALES PROMOTION—Edgar H. Felix — *McGraw-Hill* ($5). What musical instruments are best reproduced over the radio? How can the number of listeners to a radio station be estimated? What is the best time to broadcast various types of radio programs? These are typical of the questions that are answered in this book. Though it is intended mainly for those connected with the broadcasting end of radio, the material that it contains is of interest to the listener at the other end of the carrier wave as well.

Science News-Letter, July 23, 1927

THE LAW OF RADIO COMMUNICATION—Stephen Davis—*McGraw-Hill* ($3). The development of radio communication, and especially, in the last few years, of broadcasting, has had an important legal effect. Radio involved such new and previously unknown ideas that entirely new laws had to be made to regulate it. For instance, what power has the state to prosecute radio interference? Or is defamation of character by radio slander or libel? In this book Judge Davis discusses the history of radio legislation as well as the laws now in force. As the book is recent enough to include the law creating the present Federal Radio Commission, it fills a unique place.

Science News-Letter, July 23, 1927

BURIALS OF THE ALGONQUIAN, SIOUAN AND CADDOAN TRIBES WEST OF THE MISSISSIPPI—Bulletin 83 of the U. S. Bureau of American Ethnology—*Government Printing Office* ($.50). That burial of the dead was an important rite among the red men, and that their grief had many forms of expression, is shown in this well-organized little volume. Differences between customs of the tribes are made clear by many excellent illustrations.

Science News-Letter, July 23, 1927

THE PSYCHOLOGY OF MURDER—Andreas Bjerre, translated from the Swedish by E. Classen—*Longmans, Green* ($3.50). The determining factor in all crime is weakness, declares this noted Swedish criminologist. Following an introductory chapter in which this theory is elaborated, he devotes the book to three case histories, each showing how a psychically weak individual drifted into a life of crime and eventually committed murder.

Science News-Letter, July 23, 1927

The Problem of Translation—

¶Science, probing the unknown universe, writes its findings in cryptic language. A stellar galaxy shining faintly in the heavens hides its splendor and its immensity in numbers and formulæ; a minute germ has thrust upon it a long Latin name. With the aid of such scientific shorthand and such technicalities, science pushes on to new discoveries and new heights.

¶Yet the facts and the methods of science must penetrate and permeate the whole fabric of civilization if the world is to become an increasingly better place to live in. The man in the street, the child in the school, the merchant in the counting house, the judge on the bench, the priest in the temple, all of those who make the world, must know, appreciate, understand and cherish the spirit of research and the power of thought.

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Anniversaries of Science

July 27, 1866—The Atlantic cable was successfully landed at Newfoundland.

In 1852, an engineer named F. N. Gisbourne, conceived the idea of connecting by telegraph New York and St. John's, Newfoundland. By this the time of communication between the two continents was to be shortened by two days. Part of the lein was to consist of a submarine cable across the Gulf of St. Lawrence. Running out of funds, he applied to Cyrus W. Field, a retired merchant of New York, for financial assistance. Although Field had amassed a fortune, he was still a young man, and the project strongly appealed to him. It soon occurred to Field that of far greater importance to commerce was a direct cable joining the Old World with the New; in other words, a cable under the Atlantic. It became Field's great obsession. Seldom has any man been fired with a more contagious enthusiasm or a mightier determination.

He began work immediately. The British and American Governments responded to his appeal for assistance, and vessels from each navy were detailed to make soundings of the ocean bottom between Newfoundland and Ireland. The report was exceedingly favorable, and Morse pronounced the project entirely feasible . . . .

The next step was to manufacture the cable. Although the distance to be covered was but 1,640 nautical miles, 2,500 miles of cable were supplied. It consisted of seven copper wires insulated with the newly discovered gutta-percha, wound about with tarred hemp, the whole sheathed in a casing of heavy iron wires.

Four unsuccessful attempts were made to lay the cable. In 1857 and 1858 the cable broke and was lost. In August, 1858, the cable was successfully landed, and messages were exchanged, but too high voltages were used, and the insulation was burned out in about a month. In 1865 the "Great Eastern" was chartered for the fourth attempt, but the cable was again lost.

A man of less steadfast faith and courage would have given up. But Field's purpose was unshakable. A new company was organized and on July 13, 1866, the *Great Eastern* started on her second venture. This time it was crowned with success, and in just two weeks the cable was safely landed on the Newfoundland shore. From that day to this the world has never been without transatlantic cable service. With little delay the *Great Eastern* sailed back to recover the last cable of the previous year. After hooking the cable twenty-nine times, and as often losing it, the thirtieth effort brought it to the surface. It was spliced with new cable and carried in safety to the cable station at Heart's Content, Newfoundland.

—Darrow in *A Popular History of American Invention.*

Science News-Letter, July 23, 1927

July 28, 1851—The sun's corona was photographed during an eclipse for the first time.

The interest aroused in eclipses was now so great that astronomers were determined to take advantage of every opportunity, no matter how short the time of totality nor how great distances it was necessary to travel in order to view the eclipses. The eclipse of July 28, 1851, was visible in Norway and Sweden, and English astronomy was well represented in the persons of the astronomer royal Airy, Hind, Dawes, Carrington, Stephenson, Gray, Lassell and Williams. Although Faye still asserted with force that the prominences were merely optical illusions or "mirages produced near the moon's surface," the general consensus of opinion was that the origin of the red flames was to be sought in the sun. To this fire of scarlet hue Airy gave the name sierra.

Any lingering doubts regarding the origin of this sierra were forever dispelled by the observations made at the eclipse of July 18, 1860, visible in America, Spain, and Northern Africa. The solution of the problem was accomplished by photography which was applied for the first time at an eclipse with anything like success. . . . Photography had already been applied at the eclipse of 1851 when Busch obtained some feeble impressions of the eclipsed sun by the daguerreotype process. Photography was even attempted in 1842 using iodized paper, but with no results.

—Mitchell: *Eclipses of the Sun.*

Science News-Letter, July 23, 1927

August 1, 1774—Priestley discovered oxygen.

Having procured a lens of twelve inches diameter and twenty inches focal distance, I proceeded with the greatest alacrity, by the help of it, to discover what kind of air a great variety of substances would yield, putting them into the vessel, which I filled with quicksilver, and kept inverted in a basin of the same. . . . With this apparatus, after a variety of experiments . . . on the 1st of August, 1774, I endeavored to extract air from *mercurius calcinatus per se;* and I presently found that, by means of this lens, air was expelled from it very readily. Having got about three or four times as much as the bulk of my materials, I admitted water to it, and found that it was not imbibed by it. But what surprised me more than I can express was that a candle burned in this air with a remarkably vigorous flame, very much like that enlarged flame with which a candle burns in nitrous oxide, exposed to iron or liver of sulphur; but as I had got nothing like this remarkable appearance from any kind of air besides this particular modification of vitreous air, and I knew no vitreous acid was used in the preparation of *mercurius calcinatus,* I was utterly at a loss to account for it.

—Priestley: *Experiments and Observations on Different Kinds of Air.*

Science News-Letter, July 23, 1927

The health officer of New Haven, Conn., sends a birthday card to each baby on its first birthday, telling the baby ways to insure good health.

AVIATION

Air Speed Limited?

With the hope of recapturing for America the world's airplane speed record, a 1,000 horsepowered machine is being built at Garden City, N. Y., for the Navy pilot, Lieut. Al Williams. The world's record is 278.48 miles an hour, held by Warrant Officer Bonnett, of France.

Enthusiasts are discussing speed possibilities. Can a man built a flying machine that has more endurance than his own body? Can a creation of man's brain out-ride its creator? Major Louis H. Bauer, Medical Corps, U. S. A., expert on aviation medicine, thinks the mechanically possible may be the physically impossible.

A speed may yet be attained which will not allow a turn to be made. Even if the plane can stand it, pressure on the stem of the brain caused by a sharp curve may cause death. He thinks it is doubtful if man will be able to withstand a speed of much over 300 miles an hour on sharp turns. A flyer may be able to withstand straight ahead spurts at much higher speed.

The question is yet to be answered. Lieut James H. Doolittle, of the Army, probably acquired a speed of 350 miles or more when he recently accomplished the amazing feet, an outside loop. He learned more about the physical effects of terrific centrifugal force than even crack pilots care to learn. He is said to have described how his eyeballs were so extended that they touched the goggles.

Although it has not yet been tested in the airplane, Lieut. Williams' new engine has already developed 1,000-horsepower. It is a Packard 1,200 horsepower motor and has twenty-four cylinders built in the X-type.

What Lieut. Williams is going to do with it is a different, if not a greater, feat than straight distance flying over oceans and deserts. Any good flyer, according to one of them, can fly a good plane anywhere. If he starts to race he must learn all over again. The ordinary flyer pulls the stick and climbs a nice slope. If a racer just thinks of pulling the stick he is liable to shoot up at a tremendous speed.

Science News-Letter, July 23, 1927

Latest plans for airplanes are said to permit of non-stop flights much farther than from Paris to New York.

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